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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Atty Dkt. 2635-16
C# M#

SUGIYAMA

TC/A.U. 1743

Serial No. 09/873,287

Examiner: T. Tung

Filed: June 5, 2001

Date: March 9, 2004

Title: MULTILAYERED GAS SENSING ELEMENT EMPLOYABLE IN AN EXHAUST
SYSTEM OF AN INTERNAL COMBUSTION ENGINE AND MANUFACTURING
METHOD THEREOF



Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

☐ **Correspondence Address Indication Form Attached.**

Fees are attached as calculated below:

Total effective claims after amendment	7	minus highest number		
previously paid for	20	(at least 20) =	0	x \$ 18.00
				\$ 0.00

Independent claims after amendment	1	minus highest number		
previously paid for	3	(at least 3) =	0	x \$ 86.00
				\$ 0.00

If proper multiple dependent claims now added for first time, add \$290.00 (ignore improper)	\$ 0.00
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Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s) (\$110.00/1 month; \$420.00/2 months; \$950.00/3 months)	\$ 950.00
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Terminal disclaimer enclosed, add \$ 110.00	\$ 0.00
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<input type="checkbox"/> First/second submission after Final Rejection pursuant to 37 CFR 1.129(a) (\$770.00)	\$ 0.00
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- ☐ Please enter the previously unentered, filed
☐ Submission attached

Subtotal \$ 950.00

If "small entity," then enter half (1/2) of subtotal and subtract	-\$ 0.00
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☐ Applicant claims "small entity" status. ☐ Statement filed herewith

Rule 56 Information Disclosure Statement Filing Fee (\$180.00)	\$ 0.00
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Assignment Recording Fee (\$40.00)	\$ 0.00
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Other:	0.00
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TOTAL FEE ENCLOSED \$ 950.00

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.
By Atty: Michelle N. Lester, Reg. No. 32,331

Signature: _____



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

SUGIYAMA

Atty. Ref.: 2635-16

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For: MULTILAYERED GAS SENSING ELEMENT EMPLOYABLE IN AN EXHAUST
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* * * * *

March 9, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REQUEST FOR RECONSIDERATION

Responsive to the Official Action dated September 20, 2003, kindly enter the
following remarks.

REMARKS

Reconsideration and allowance in view of the following remarks are respectfully
requested.

Claims 1, 2, 4-6 and 13 were rejected under 35 USC 103(a) as being
unpatentable over Mase '693 in view of Radford or Kobayashi. Applicant respectfully
traverses this rejection.

The Examiner contends that there is "ample motivation for adding silica to the
zirconia of Mase." In this regard, the Examiner contends that Radford teaches silica as
a sintering aid to lower the sintering temperature of zirconia. Further, the Examiner

contends that Kobayashi adds silica to give zirconia an advantageous coefficient of thermal expansion, better low temperature operating characteristics and better life characteristics. In view of this, the Examiner summarily concludes that silica would "obviously" be added to the zirconia of Mase and that so modified, Mase would "inherently" have a silica-containing bonding boundary when the zirconia and alumina layers are laminated by sintering.

It is clear that the initial burden of establishing a basis for denying patentability to a claimed invention rests upon the Examiner. In re Piasecki, 745 F. 2d 1468, 223 USPQ 785 (Fed Cir. 1984). In establishing a *prima facie* case of obviousness under 35 U.S.C. § 103, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to arrive at the claimed invention from the prior art. Ex parte Clapp, 227 USPQ 972 (BPAI 1985). The Examiner bears the burden of establishing the existence of either 1) some objective teaching in the prior art or 2) knowledge generally available to one of ordinary skill in the art which would lead that individual to change the primary reference. In re Jones, 21 USPQ2d 1941, 1943-44 (Fed. Cir. 1992).

Rejections based on 35 USC §103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has initial duty of supplying the factual basis for the rejection. The Examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. See In re Wanery, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967).

It is respectfully submitted that the Examiner has not identified a motivation that would lead the skilled artisan to modify Mase. In this respect, it is noted that Mase intends to provide a sensor device free from warpage. While Radford discloses that silica lowers the sintering temperature of zirconia, Mase does not require a lower sintering temperature. Therefore, the skilled artisan would not be motivated to use the

silica of Radford for the sensor device taught by Mase. More specifically, according to Radford, the use of silica as a sintering aid is explained as part of the manufacturing process for a specific solid electrolyte cell which is made by preparing a sheet of finely-divided electrolyte, such as zirconia, bonded together with an organic resin (see e.g., Abstract). In addition, Radford does not teach the use of silica as a sintering aid applicable to other types of electrolyte devices. Thus, Radford's use of silica and his teachings relating thereto are limited to the specific solid electrolyte cell disclosed in his patent. In this respect, one of ordinary skill in the art would not be motivated by Radford to use silica as disclosed in Radford for the sensor device of Mase. Section 103 does not allow the Examiner to engage in picking and choosing from the prior art only to the extent that it will support a holding of obviousness, while excluding parts of the prior art essential to the full appreciation of what the prior art suggests to one of ordinary skill in the art. In re Wesslau, 147 USPQ 391 (CCPA 1975).

Thus, it is respectfully submitted that the only motivation to adopt this isolated teaching of Radford in Mase is applicant's own disclosure.

With regard to Kobayashi, although the Examiner has characterized Kobayashi as teaching the addition of silica as giving an advantageous coefficient of thermal expansion, or as giving "better low temperature operating characteristics' and/or "better life characteristics', Mase does not teach or suggest that the structure thereof requires improvement of such characteristics. Therefore, the skilled artisan would not be motivated to adopt the teachings of Kobayashi in Mase. Furthermore, it is noted that Kobayashi's use of silica is explained based on a specific sensor 10 including a cup-shaped alumina pipe 18 and an oxygen sensor chip 16 with porous platinum electrodes 14a and 14b formed on opposite end faces of a cylindrical element 12. Thus, Kobayashi's use of silica is disclosed only in connection with specimens of this type. Moreover, Kobayashi does not teach the use of silica as being applicable to other types of electrolyte devices. Thus, Kobayashi's teachings relating to silica are limited to the specific sensor 10 disclosed in his patent and Kobayashi does not provide a motivation

to use silica in another non-analogous sensor structure. Thus, Kobayashi does not provide the requisite motivation to add silica to Mase. The only motivation for modifying Mase in this manner is applicant's own disclosure.

In contrast to Radford and Kobayashi, the present invention is directed to a multilayered type sensing device to solve a problem characteristic to a multilayered type sensing device. More specifically, the purpose of the present invention is to enhance the bonding strength at the bonding boundary between a zirconia solid electrolytic sheet and an alumina insulating sheet. To solve a problem inherent to multilayered type sensing devices, one of ordinary skill in the art would not look to the teachings of Radford or Kobayashi because these references relate to a non-multilayered type devices and, accordingly, do not teach or suggest that silica would be of any particular use or advantage in a multilayered type sensor. It is therefore respectfully submitted that Radford and Kobayashi do not motivate the skilled artisan to add silica to Mase and, as such, the prior art cited by the examiner does not alone, or properly combined, teach the invention recited in applicant's independent claims.

While the Examiner has said that there is no requirement that references make an affirmative suggestion for a combination, it is respectfully submitted that the Examiner has established no nexus between the teachings of Radford and Kobayashi and the structure and function of Mase so as to motivate the skilled artisan to modify Mase in view of Radford and Kobayashi.

In view of the foregoing, reconsideration and withdrawal of the Examiner's rejection is respectfully requested.

Claims 3, 5, and 6 have been rejected over Mase in view of Radford or Kobayashi and further in view of Ishiguro, JP '409 and/or JP '571. These claims are submitted to be distinct from the Mase, Radford, and Kobayashi for the reasons advanced above. These references are not properly combinable under 35 USC 103. The Examiner's further reliance on the additional art cited does not overcome the

deficiencies of the primary combination noted above.

Claims 1, 4-6 and 13 were also rejected under 35 USC 102(b) as anticipated by Mase.

Anticipation under Section 102 of the Patent Act requires that a prior art reference disclose every claim element of the claimed invention. See, e.g., Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1574 (Fed. Cir. 1986). While other references may be used to interpret an allegedly anticipating reference, anticipation must be found in a single reference. See, e.g., Studiengesellschaft Kohle, G.m.b.H. v. Dart Indus., Inc., 726 F.2d 724, 726-27 (Fed. Cir. 1984). The absence of any element of the claim from the cited reference negates anticipation. See, e.g., Structural Rubber Prods. Co. v. Park Rubber Co., 749 F.2d 707, 715 (Fed. Cir. 1984). Anticipation is not shown even if the differences between the claims and the prior art reference are insubstantial and the missing elements could be supplied by the knowledge of one skilled in the art. See, e.g., Structural Rubber Prods., 749 F.2d at 716-17.

There is no disclosure in Mase that Mase contains silica as an impurity or otherwise. Thus, a rejection under 35 USC 102 is improper. The Examiner's reference to Hayakawa is improper under § 102(b). Therefore, this rejection is improper and should be withdrawn.

The Examiner's rejection of claims 2 and 3 over the combination of Mase in view of Radford and/or Ishiguro and rejection of claims 5 and 6 over Mase in view of Japan '409 and Japan '571 are also respectfully traversed in view of the deficiencies of Mase with regard to the disclosure of silica.

Claims 1, 4-6 and 13 were also rejected under 35 USC 103 as unpatentable over Mase in view of Hayakawa. Applicant respectfully traverses this rejection.

As explained above, Mase '693 intends to provide a sensor device that is free from warpage. In contrast to the disclosure of Mase, Hayakawa is designed to improve a withstand voltage against blackening without relying on SiO₂ as an additive. To this end, Hayakawa uses silica as a sintering aid. In this regard, it would clear to the skilled artisan that Mase '693 and Hayakawa have mutually unrelated purposes so that one skilled in the art considering Mase would not look to Hayakawa much less be motivated by Hayakawa to modify Mase. Likewise, the skilled artisan would not be motivated to modify Hayakawa in any way in view of Mase. Furthermore, combining these references in an effort to create the invention would be difficult. In view of the foregoing, it is respectfully submitted that the invention claimed is not anticipated by nor obvious from Mase nor any proper combination of Mase and Hayakawa.

Claims 2, 3, 5 and 6 were rejected under 35 USC 103 as unpatentable over Mase in view of Hayakawa when further taken in view of Radford, Ishiguro, Japan '409 and/or Japan '571. These claims are submitted to be patentable over Mase and Hayakawa for the reasons advanced above. Indeed, it is respectfully submitted that it is improper under 35 USC 103 to combine Mase and Hayakawa because that combination is without motivation in the prior art of record. The Examiner's reliance on the tertiary references does not overcome the deficiencies of the Mase/Hayakawa combination noted above.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and an early Notice to that effect is earnestly solicited.

SUGIYAMA
Appl. No. 09/873,287
March 9, 2004

Respectfully submitted,

NIXON & VANDERHYE P.C.

By:

A handwritten signature in black ink, appearing to read "Michelle N. Lester", written over a horizontal line.

Michelle N. Lester
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